

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 722 257 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
27.04.2005 Bulletin 2005/17

(51) Int Cl.7: **H04Q 3/00**

(21) Application number: **96300135.9**

(22) Date of filing: **08.01.1996**

(54) Intelligent network service provision by multiple servers

Bereitstellung eines intelligenten Netzwerkdienstes mittels mehreren Servern

Fourniture de service par serveurs multiples dans un réseau intelligent

(84) Designated Contracting States:
DE ES FR IT

(30) Priority: **13.01.1995 GB 9500696**

(43) Date of publication of application:
17.07.1996 Bulletin 1996/29

(73) Proprietor: **Marconi UK Intellectual Property Ltd**
Coventry, CV3 1HJ (GB)

(72) Inventors:
• **Williams, Philip John**
Brislington, Bristol BS4 5AN (GB)

• **Jones, Keith Patrick**
Earlsdon, Coventry CV5 6AF (GB)

(74) Representative: **Collier, Ian Terry et al**
Marconi Intellectual Property
Crompton Close
Basildon, Essex SS14 3BA (GB)

(56) References cited:
EP-A- 0 581 526 **WO-A-93/16543**

• **KETTLER H W: "AT&T'S GLOBAL INTELLIGENT
NETWORK ARCHITECTURE" AT & T
TECHNICAL JOURNAL, vol. 71, no. 5, September
1992, pages 30-35, XP000329802**

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 0 722 257 B1

Description

[0001] An Alternative Intelligent Network Architecture, also referred to as an Enhanced Intelligent Network was described in patent application number GB2272603A

[0002] The Enhanced Intelligent Network (I.N.) architecture is illustrated in Figure 1, and outlined below.

[0003] To invoke an Enhanced I.N. service, a local exchange extends a standard invocation message via an I.N. message network addressed to the nearest Sorter. The message contains the caller's identity (CLI) and classification, the digits dialled by the caller to request an I.N. service and a call-reference identifying the call within the local exchange.

[0004] The Sorter opens the message to identify the service required and uses a look-up table to re-address the message to the appropriate Server. Routers are the nodes of the message network; they forward messages to the addressed destination.

[0005] Upon receiving the message, the Server delivers the service by picking-up the caller via the public network using the CLI, call-reference and the IN-over-ride facility which enables connection to the off-hook subscriber.

[0006] Later, the Server may transfer the call to another Server by amending the original invocation message and returning it to the message network addressed directly to the new Server or via the nearest Sorter as before. Such invocation messages will often include an appendage.

[0007] Servers thus provide all of the intelligence and complexity required to deliver the services. The only other intelligence employed is that which enables the Sorter to identify the address of the Server.

[0008] Forwarding invocation messages to services provided in other networks or other countries, using the method of Figure 1, would require that Sorters were able to identify the location of Servers in other networks or other countries, which would in turn require inter-network and international management of Sorters, see e.g; KETTLER H.W. : 'AT&T Global Intelligent Network Architecture, AT&T Technical Journal Sept/Oct. 1992, N°5, p.30-35, Short Hills, NJ, US.

[0009] The means of avoiding the need for inter-network and international Sorter management is illustrated in Figure 2 and outlined below.

[0010] When a Sorter is required to re-address an invocation message to a service provided in another network, it simply re-addresses the message to a Sorter in that network. Similarly when a service is provided in another country, the Sorter re-addresses the message to a Sorter in that country, it does not matter that the country may include many networks.

[0011] Thus, the code dialled to gain access to a service provided in another country, will be prefixed to identify the country. Within a country, the network in which a service is provided will probably be identified by the al-

location of blocks within a common numbering scheme rather than by the use of prefix digits

[0012] In EP 0581526 (AT & T) there is described an intelligent network system in which a local exchange transmits a service invocation message to a first intelligent network having a first sorter for identifying an intelligent network service requested by the message, and a first server addressable by the first sorter for delivering the intelligent network service to the local exchange.

[0013] According to the present invention there is provided an intelligent network system comprising an arrangement for delivering the intelligent network service from a second intelligent network connected to the first network, the arrangement comprising: (a) a second sorter located in the second network and connectable to the first sorter, (b) a second server in the second network connectable to the second sorter; (c) means associated with the first sorter arranged to determine when a service invocation message does not relate to an intelligent network service provided by the first server and to re-address such a service invocation message to the second sorter associated with the second intelligent network; and (d) means associated with the second sorter arranged to determine whether or not such a service message relates to an intelligent network service provided by a second server associated with the second sorter and, if so, to re-address the service invocation message to the second server so that the second server can deliver the intelligent network service from the second intelligent network to the local exchange

[0014] The present invention will now be described by way of example, with reference to the accompanying drawings, in which:-

Figure 1 shows a schematic representation of a prior art Intelligent Network.

Figure 2 shows a schematic representation of the means by which an Intelligent Network enables internetwork and international service delivery; and

Figure 3 shows a schematic representation of a system such as is shown in Figures 1 and 2 which enables access to a variety of services and information provided as a single service by a large business organisation or consortium.

[0015] A large business organisation or consortium may require a single directory number or service code to provide access to any Server within the organisation thereby enabling access to the complete range of services. Some services will be available to the general public while other services or sources of information will be restricted to agents or employees. The fact that the Server delivers the service to the caller's directory number guarantees the security of proprietary information.

[0016] Each service or source of information will be

delivered from the site at which the business is handled or the information resides. The source of different services and information may thus be spread around many sites and many countries.

[0017] To gain access to such services and information, Sorters will address all service invocation messages to the Server at the Service Provider's head office or regional depot. This Server may deliver some services but will re-address most of the messages to Servers at the relevant businesses, which may in turn re-address some of the messages to another site.

[0018] Any or all of these re-addressing actions may cross national or network boundaries and may include picking-up and interrogating the caller. Having interrogated the caller, the invocation message will usually include an appendage. (A call established to interrogate a caller will be released when the caller is picked-up by another Server for interrogation or to deliver the service.)

[0019] Service Providers may thus extend their range of services at will, with no effect whatever upon public network or message network equipment. When Servers are provided at a new location the Service Provider needs only to notify his existing Servers of the new Server's message network address and the new services available.

[0020] The advantage of this simple re-addressing process is that even the most obscure and fluid information is easily accessible. When the Service Provider or one of his subordinates has located the required service or information, it will appear at a public network terminal somewhere in the world and establish a connection to the caller.

[0021] Public networks are as a result not required to allocate directory numbers to every facet of obscure services and fleeting sources of information, as would be required if connections to services were to be established in the conventional forward manner.

Claims

1. An intelligent network system in which a local exchange transmits a service invocation message to a first intelligent network having a first sorter for identifying an intelligent network service requested by the service invocation message, and a first server addressable by the first sorter for delivering the intelligent network service to the local exchange, **characterized in that** the intelligent network system comprises an arrangement for delivering the intelligent network service from a second intelligent network connected to the first network, the arrangement comprising:

- (a) a second sorter located in the second network and connectable to the first sorter;
- (b) a second server in the second network con-

nectable to the second sorter;

(c) means associated with the first sorter arranged to determine when a service invocation message does not relate to an intelligent network service provided by the first server and to re-address such a service invocation message to the second sorter associated with the second intelligent network; and

(d) means associated with the second sorter arranged to determine whether or not such a service invocation message relates to an intelligent network service provided by a second server associated with the second sorter and, if so, to re-address the service invocation message to the second server so that the second server can deliver the intelligent network service from the second intelligent network to the local exchange.

2. The system as claimed in Claim 1, wherein the first and second networks are located in a single country.
3. The system as claimed in Claim 1, wherein the first and second networks are located in different countries.
4. The system as claimed in Claims 1, 2 or 3, wherein the first and second networks are operated by a single user.
5. The system as claimed in any preceding claim, wherein the second server is connected to a public network which is connected to the local exchange.

Patentansprüche

1. Intelligentes Netzwerksystem, bei welchem eine Ortsvermittlung eine Dienstaufrufsmeldung an ein erstes intelligentes Netzwerk überträgt, welches einen ersten Sortierer zum Identifizieren eines intelligenten Netzwerkdienstes, welcher durch die erste Dienstaufrufsmeldung angefordert wird, und einen ersten Server hat, welcher durch den ersten Sortierer zum Übergeben des intelligenten Netzwerkdienstes an die Ortsvermittlung adressierbar ist, **dadurch gekennzeichnet,** **dass** das intelligente Netzwerksystem eine Anordnung zum Übergeben des intelligenten Netzwerkdienstes von einem zweiten intelligenten Netzwerk, welches mit dem ersten Netzwerk verbunden ist, enthält, wobei die Anordnung enthält:

- (a) einen zweiten Sortierer, welcher sich im zweiten Netzwerk befindet und mit dem ersten Sortierer verbindbar ist;

(b) einen zweiten Server im zweiten Netzwerk, welcher mit dem zweiten Sortierer verbindbar ist;

(c) ein mit dem ersten Sortierer verbundenes Mittel, welches angeordnet ist zu bestimmen wann sich eine Dienstaufrufsmeldung nicht auf einen intelligenten Netzwerkdienst bezieht, welcher durch den ersten Server bereitgestellt ist, und eine solche Dienstaufrufsmeldung an den mit dem zweiten intelligenten Netzwerk verbundenen zweiten Sortierer neu zu adressieren; und

(d) ein mit dem zweiten Sortierer verbundenes Mittel, welches angeordnet ist zu bestimmen ob sich eine solche Dienstaufrufsmeldung auf einen intelligenten Netzwerkdienst bezieht, welcher durch einen zweiten Server bereitgestellt ist, welcher mit dem zweiten Sortierer verbunden ist, oder nicht, und, wenn zutreffend, die Dienstaufrufsmeldung an den zweiten Server neu zu adressieren, so dass der zweite Server den intelligenten Netzwerkdienst vom zweiten intelligenten Netzwerk an die Ortsvermittlung übergeben kann.

2. System nach Anspruch 1, bei welchem sich das erste und zweite Netzwerk in einem einzigen Land befinden.
3. System nach Anspruch 1, bei welchem sich das erste und zweite Netzwerk in unterschiedlichen Ländern befinden.
4. System nach Anspruch 1, 2 oder 3, bei welchem das erste und zweite Netzwerk durch einen einzigen Benutzer bedient werden.
5. System nach einem der vorhergehenden Ansprüche, bei welchem der zweite Server mit einem öffentlichen Netzwerk verbunden ist, welches mit der Ortsvermittlung verbunden ist.

gent connecté au premier réseau, le dispositif comprenant :

(a) un second trieur situé dans le second réseau et pouvant être connecté au premier trieur ;

(b) un second serveur dans le second réseau pouvant être connecté au second trieur ;

(c) des moyens associés au premier trieur et agencés de façon à déterminer quand un message d'invocation de service ne concerne pas un service de réseau intelligent assuré par le premier serveur, et à réorienter ce message d'invocation de service vers le second trieur associé au second réseau intelligent ; et

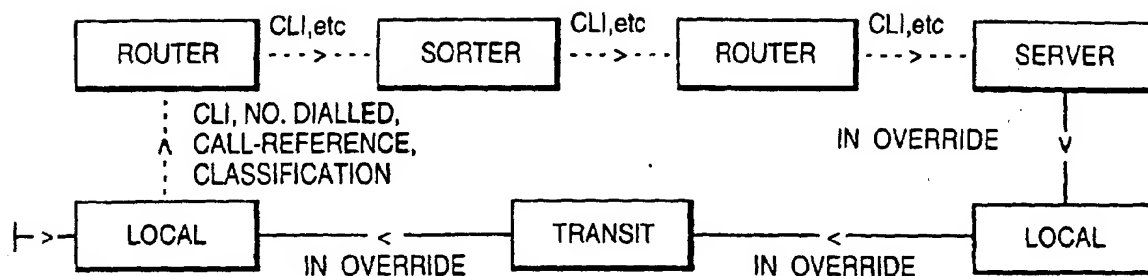
(d) des moyens associés au second trieur et agencés de façon à déterminer si ce message d'invocation de service concerne ou non un service de réseau intelligent assuré par un second serveur associé au second trieur et, le cas échéant, à réorienter le message d'invocation de service vers le second serveur de telle sorte que le second serveur peut délivrer le service de réseau intelligent venant du second réseau intelligent au central local.

2. Système selon la revendication 1, dans lequel les premier et second réseaux sont situés dans un seul pays.
3. Système selon la revendication 1, dans lequel les premier et second réseaux sont situés dans des pays différents.
4. Système selon les revendications 1, 2 ou 3, dans lequel les premier et second réseaux sont utilisés par un seul utilisateur.
5. Système selon une quelconque revendication précédente, dans lequel le second serveur est connecté à un réseau public qui est connecté au central local.

Revendications

1. Système de réseau intelligent dans lequel un central local transmet un message d'invocation de service à un premier réseau intelligent ayant un premier trieur destiné à identifier un service de réseau intelligent demandé par le message d'invocation de service, et un premier serveur, adressable par le premier trieur, permettant de délivrer le service de réseau intelligent au central local, **caractérisé en ce que** le système de réseau intelligent comprend un dispositif permettant de délivrer le service de réseau intelligent à partir d'un second réseau intelli-

Fig.1.

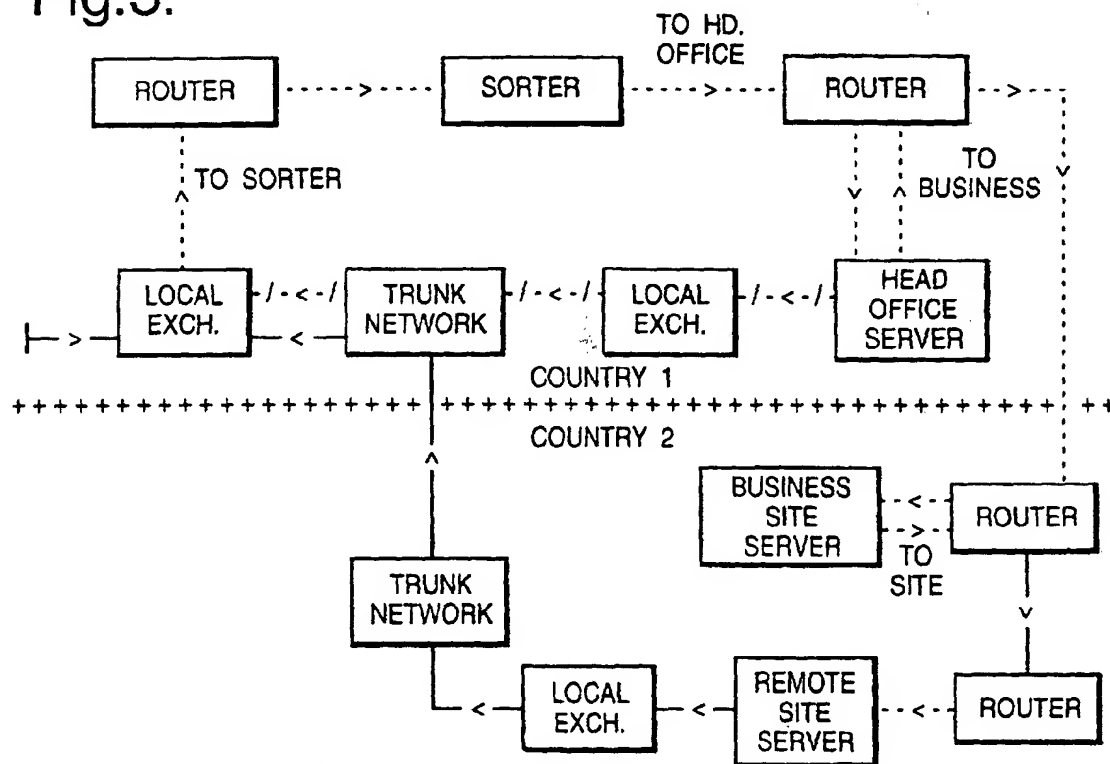


LEGEND :

--->--- DENOTES MESSAGE-ONLY AND DIRECTION.

—>— DENOTES CALL AND DIRECTION OF ESTABLISHMENT

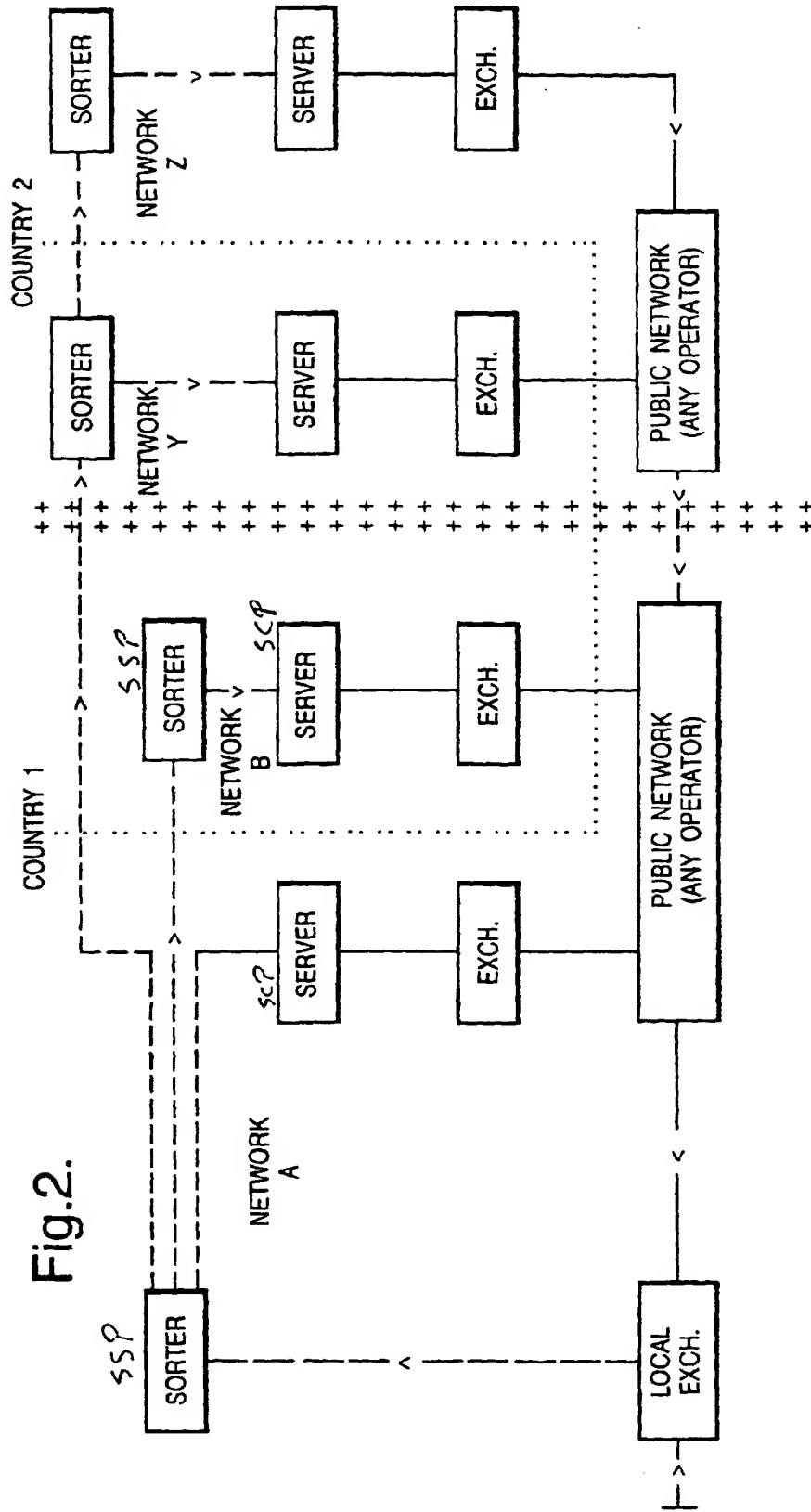
Fig.3.



--->--- SERVICE INVOCATION MESSAGE

-/-<-/- ENQUIRY CALL (RELEASED BY SERVICE DELIVERY CALL)

—<— SERVICE DELIVERY CALL



---> DENOTES MESSAGE VIA MESSAGE NETWORK

---> DENOTES CALL AND DIRECTION OF ESTABLISHMENT